

R E P O R T
OF THE
SPECIAL COMMITTEE
ON THE
PREPARATION FOR ENTRY OF THE
NATIONAL MALARIA ERADICATION PROGRAMME
INTO THE MAINTENANCE PHASE

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I. INTRODUCTION

Malaria had till recently been the first in the list of injury to the community in India and in several other parts of the world. The anti-malaria measures in the pre-DDT era consisted mostly of ant larval measures and drainage schemes. On account of the extensive areas to be covered and very heavy costs involved, it had not been feasible to extend these operations to rural areas. They were necessarily limited to a few urban areas only. The first break-through for rural malaria control came when DDT proved its value that malaria control could be brought within the economic feasibility of a developing country.

Malaria eradication operates in four phases: the preparatory, Attack Consolidation and Maintenance. A special organization is established for the first three phases, while the activities under the maintenance phase are the responsibility of the general health organization of a country. Under the Indian programme, the preparatory phase was omitted because of the experience gathered during period of 5 years when a nation-wide control programme had been operative in the country from 1953 to 1957. The special organization for malaria eradication came into existence both at the Center and the States from 1958 to 1957. The campaign has been operative for over 5 years and 228.3 units* concerning about 251.5 million population, have completed the task under the Attack phase, are in the consolidation phase in 1963.

Some of the units that had entered consolidation phase in 1962 are becoming ready to enter the final stage, the maintenance phase in 1962 are becoming ready to enter the final stage, the maintenance phase from next year. Areas in various states will enter this phase by the responsibility of the general health organization in the country, it is necessary that the states be prepared to take over such activities as and when the units are ready to enter the maintenance phase.

It must be stressed that malaria eradication alone is not sufficient: the gains achieved must be sustained. Before any unit is demobilized and the programme enters the maintenance phase, it is necessary to ensure that suitable machinery exists for vigilance services to prevent the resurgence of malaria. This requires certain preparation, administrative and technical. It is also important to ensure correct procedures to be adopted to suit local conditions.

It is therefore necessary (i) to study not only the present position regarding the malaria eradication operation but also the maturity of the health organization to take over such activities as are required during the maintenance phase; (ii) to assess measures necessary to ensure smooth running of the vigilance services subsequent to the demobilization of the special organization established for eradication of the disease; (iii) to formulate plans for the maintenance phase.

These points were fully appreciated by malaria workers in the country as early as Jun, 1962, when for the first time it was envisaged that about 70 to 80 million population area should normally be ready to enter the maintenance phase in 1964.

* One unit was designed to cover a population of about 1 million. However, owing to the increase in population, unit covers about 1.12 million population.

The conference of State Malariologists held at Simla 18th to 20th June 1962 recommended that a sub-committee should

- 1) review the rural health facilities,
- 2) apportion the priorities for establishment of rural health centers in those unit areas which are likely to enter the maintenance phase,
- 3) consider the requirement of additional staff for the rural organization for vigilance operation under the maintenance phase, and
- 4) consider the manner in which the staff of the N.M.E.P. should be deployed, including the other public health activities.

On the basis of the recommendations, a sub-committee consisting of health administrators and malariologists, formed by the Government of India, met under the Chairmanship of the Director General of Health Services on the 3rd and 4th September, 1962. The sub-committee reviewed the National Malaria Eradication programme and recommended that a special Committee should study in detail the preparations that are to be made for the entry into the maintenance phase and formulate a plan. The special committee was constituted, by the Government of India under the Ministry of Health letter No.F.1-22/62-Instt., dated the 10th April, 1963. The terms of reference were:-

(1) The committee should go into the details of the requirement related to the primary health centers, their planning, the necessary priority required according to the needs of the maintenance phase of the Malaria Eradication programme;

(2) The committee should also consider the Staffing pattern required for the malaria eradication programme but also for other health activities and the manner in which the technical and supervisory staff of the N.M.E.P. organization should be utilised after malaria eradication has been achieved.

The Committee was constituted of;

1. The Director General of Health Services Chairman
2. The Director of Health Services, Bihar.
3. The Director of Health Services, Kerala.
4. The Director of Medical Services, Madras.
5. The Director of Public Health, Madras.
6. The Director of Public Health, Mysore.
7. The Director of Medical Health services, U.P.
8. A representative of the Union Ministry of Health,
9. A representative of the Directorate General of Health services.
10. Chief, Health division, Planning Commission.
11. Dr.P.R. Dutt, Asstt. Director General of Health services. secretary.

The Special committee held its first meeting on 16.4.63, the second meeting on 3.8.1963, and the third meeting on 21st and 22nd November, 1963 at New Delhi under the Chairmanship of the Director General of Health Services.

The committee invited Regional Director, World Health Organisation South East Asia Regional Officers; Director, National Institute of Communicable Diseases; Director, National Malaria Eradication programme; Chief Health Division, United States Agency for

International Development; Adviser, Health, Ford Foundation; Adviser, Health Ministry Community Development and Co-operation, Director, family planning to participate in the deliberations. The Secretary drew up a list of basic information. He spent a week in each of the States of Bihar, Kerala, Madras, Mysore and Uttar Pradesh and made personal observations in the field on the existing facilities for the vigilance operations and discussed with various health authorities and workers. He also visited Bombay City to observe the working of surveillance operations.

The interim report was placed before the Central council of Health during its eleventh session at Madras on 5-7th November, 1963. As recommended by the council, the Health Secretaries of the States of Kerala, Mysore, Madras, Maharashtra, Uttar Pradesh, Punjab and Bihar and Director of Public Health, Maharashtra and Director of Health Services, Punjab were also invited to consider and finalise the report during the third meeting.

List of participants is at appendix 15.

SUMMARY

Malaria, till recently, had been the greatest handicap to the socio-economic development of the country. The only methods of control viz. anti-larval and drainage schemes were expensive and as such it had not been possible to include in the pre- DDT period the rural India in any large scale control programme. The main activities had to be restricted in certain urban areas. By 1952 DDT provided protection to about 8% of the population at risk. The National Malaria Control Programme commenced in 1953. as a joint Indo-American co-operative effort, contemplating a progressive phasing starting from 84 endemic units to reach 200 units in 5 years towards the end of 1957-58.

Meanwhile, malaria control programme undertaken in several countries using DDT as a residual insecticide brought two technical points into focus:

- (1) The possibility of fortuitous eradication of the disease even in countries where such an aim was not specifically planned in the first instance; and
- (2) Precipitation of resistance in the mosquitoes to insecticides.

The risk of resistance urged countries to plan eradication which has been shown to be possible before the resistance development in malaria-carrying mosquitoes. The newer concept of total eradication of the disease grew as a result of impact of world opinion channeled through accredited International Organisations like the W.H.O. and U.S. Agency for International Development. In 1958 the Indian programme changed its objective from control to eradication. In 1962, after 4 years of activities, 140.47 units entered the consolidation phase and another 87.83 more units in 1963.

The preparation for entry into the maintenance phase has been under consideration since 1962. A sub-committee formed by the Government of India under the Chairmanship of the Director General of Health Services, meeting on the 3rd and 4th September 1962, gave consideration to

- (a) the absorption of the activities of the maintenance phase into the general health services ;
- (b) strengthening of the basic rural health services, and
- (c) training of personnel engaged in specialized mass campaigns to become multi-purpose workers so that they can continue to follow up the measures required for the maintenance phase as a part of the routine health activities.

On the basis of the recommendations of the Sub-Committee a Special Committee was constituted in April 1963, under the Chairmanship of Director General of Health Services, The committee met thrice. It considered that the maintenance is the responsibility of the general health services, which should be adequately strengthened, particularly the rural.

As the malaria eradication programme advanced towards consolidation and maintenance, It became clear that eradication cannot be sustained without the support of the general health services, capable of taking over the entire responsibility for vigilance during the maintenance phase.

This was realized in 1960, when the W.H.O. recommended as an essential requisite during the pre-eradication activities, the development of rural health infra-structures, which

will ultimately take over the responsibility for vigilance for sustaining malaria eradication in the maintenance phase.

Unless malaria has been eradicated from the world, the risk of re-establishment of malaria is far too great. Failure in consolidation of eradication will be disastrous to the country in general and to the health organization in particular.

The health services in the areas entering the maintenance phase will have to be suitably augmented to meet the needs of vigilance for sustaining eradication. What is of utmost importance in the vigilance is the total coverage of the population. It is thus necessary to consider not only the distribution and the number of the static dispensaries, Health centers, etc. but also what proportion of the population is at present utilizing these facilities. In the rural areas, except for the population within a radius of 1—to 2 miles from a health center, people generally seek treatment only for painful conditions and ailments that keep them off from work. Even then, representation by friends and relatives at health centers is high. It is, therefore imperative that, in addition to the establishment of the rural health centers, dispensaries and hospitals some form of multipurpose domiciliary health services is necessary as an intrinsic part of the basic health services to ensure total coverage. Such a domiciliary service will form the basis not only for integrating other mass campaigns such as smallpox eradication in their maintenance phase into the general health services but also for undertaking newer health programmes. This will be an investment towards building of rural health services particularly for sustaining mass programmes is also necessary to comply with these basic needs of vigilance, viz.

- (1) prompt detection, radical treatment of parasite carriers and their follow up,
- (2) epidemiological investigation of positive cases and measures to eliminate foci, and
- (3) periodic review of the status of eradication and the adequacy of the vigilance systems.

The recommendation of the Committee are:

(1) Vigilance through medical institutions must be developed to the fullest extent. All medical institutions, Government or Non-Government private medical practitioners, irrespective of the system of medicine they practice, and all professional and other workers should be harnessed.

The members of panchayats, block development committee, Mahila mandals, youth clubs, other voluntary agencies, teachers, etc. should participate and efforts should be so made that every village, hamlet or locality has one "voluntary collaborator."

(2) All efforts should be made to establish primary health centres provided for in the current plan period particularly for in the areas entering the maintenance phase. The States that have a plan programme for establishing a certain number of midwifery or maternity and child health centres every year should give priority to their establishment in the areas, deficient of adequate medical coverage.

(3) In urban areas, institutional case detection should be the mainstay. The major medical institutions with heavy out-patient attendance should have a person specially detailed to take clinical samples including blood smears. These institutions should have a separate clinical side-room.

Additional staff will be required for –

- (a) activation of institutions case detection,
- (b) domiciliary case detection in slum areas including collection of blood smears and dispatch to laboratories, and
- © special investigation of foci.

(4) In rural areas, owing to incomplete and uneven coverage by medical institutions and liberal representation by proxy at primary health centres and dispensaries, there should be facilities for detection of fever cases and for taking blood smears from all suspected malaria and inadequately explained fever cases through domiciliary services.

(5) Domiciliary services should be development for all health programme including malaria, smallpox, control of other communicable diseases, health education, etc.

(6) The basic services unit should cover not more than 5000 population. However, owing to limitations of financial and material resources at present the basic services unit should cover about 10,000 population. This may form a sub-centre of a primary health centre. The number of such sub-centres will naturally vary depending on the population and area covered by a health centre.

(7) It should be staffed by a midwife or auxiliary nurses, midwife and a health assistant or auxiliary health worker. There should be a midwife or auxiliary nurse midwife for every 5,000 population. However, in view of the limited number available as an interim measure only one is recommended for every 10,000 population. The staff required over and above that approved in the Family Planning programme should be provided by the general health services.

(8) The Extension Educator (Family Planning) should be utilized in strengthening education aspects of all programmes.

(9) The existing one Sanitary Inspector at the block level is very inadequate. Although we should have one Sanitary Health inspector for 10,000 populations, this may not be feasible at present. "In addition to the existing one at the block level, there should be at least one Sanitary Health, Inspector, for, 20,000-25,000 population. He will provide supervision to all health activities including domiciliary services. The senior-most of them may be designated as Senior Sanitary/Health Inspector.

(10) Each primary health center should have a microscope and laboratory technician who shall conduct all simple laboratory examinations giving particular attention to examination of blood smears for malaria parasites. In the block where there is no primary health center, a suitable dispensary may be, selected to have the facilities of a microscope and a laboratory technician until such time a primary health center is established.

(11) Where possible, there should be an extra-medical officer for a Primary Health Center.

(12) At the district level-there should be, in addition to the District Health Officer another medical officer trained in malaria. He should be assisted by a reasonable number of Health Supervisors approximately on the ratio of one- per six or seven blocks.

(13) Existing State Regional or Division Health Officer should be strengthened by an officer trained in epidemiology and malaria. In the States not having regional offices, the existing zonal level National Malaria Eradication offices should be converted into regional offices.

(14) State Levels:- A state Malaria Office preferable of the rank of Deputy Director is required for overall guidance and supervision. He should continue for at least two years after the entire state has entered the maintenance phase. Afterwards he will be in charge of control of communicable diseases including malaria. The State Malaria laboratory should be merged into the State Public Health laboratory so that every Public Health laboratory has a malaria section. The laboratory at the State level should have at least one medical officer for epidemiological work, one entomologist, 2 or 3 entomological assistants and a number of microscopists for undertaking, special investigation and 'serve as' the Central Intelligence Bureau, for malaria in the State.

(15) Laboratory- services:- Facilities should be provided at each district, headquarter hospital or district laboratory for examination of blood smears which should be kept a separate entity under the direct supervision of the assistant District-Health Officer for a period of two to three years. A senior-laboratory technician should supervise the work of laboratory technicians at lower levels.

(16) Central Level : The regional Coordinating organization should continue to provide inter-state co-ordination technical guidance, assistance in training and laboratory services. After the eradication has been achieved these organizations should be developed into the regional offices of the Directorate General of Health Services.

The central organization of the National Malaria Eradication Programme on a modified scale should be retained for at least 2 to 3 years after the eradication has been achieved over the whole country.

(17) Logistics: Equipment and stores should remain at the district level under the direct control of the district health officer. However a few sprayers and a small quantity of DDT should be kept at lower level.

(18) Transport: Transport will be required for each

State Malaria Officer		1
Regional Officer		1
District Health Officer		1
Assistant District Health Officer		1
Health supervisor		1 each

The senior health/sanitary inspector who will provide supervision in the block area should have an easy and quick means of independent transport. A cycle is a must with suitable cycle allowance. A health inspector and a health worker should be provided with a cycle or at least provided with adequate allowance to maintain a cycle.

(19) There should be a direct line of command from the State Health Directorate downwards.

(20) Utilisation of the NMEP Staff: National Malaria Eradication Programme staff, who will be available for re-employment have wide experience in the field. They should be utilized with necessary training wherever required in filling up the posts on a priority basis in the various health and medical programmes.

(21) the training will be required for two broad categories of personnel (a) the existing health personnel and (b) NMEP staff

(a) Existing health personnel may be given a short orientation for about a week in malaria.

(b) NMEP Staff: Two types of training short orientation and long courses are recommended. The personnel have wide experience in the field particularly in respect of the approach to the people and in basic down-to-the earth health education methods. Job orientation in the programmes, current at the moment, will make them suitable to undertake the responsibility under proper supervision. Further orientation may be given as new programmes are undertaken.

Facilities should also be provided every year for longer regular courses as health inspectors, laboratory technicians, health assistants, etc. for a certain proportion of the workers.

The Central and State Government should provide immediate facilities for various types of training, short and long courses, in various subjects so that we are ready to undertake the maintenance phase as soon as the units are ready.

(22) Notification: Though notification for other disease has not worked satisfactorily, a beginning must be made for malaria at the commencement of the maintenance phase.

(23) Vulnerable areas and groups: Vulnerable areas and groups should be delineated and strict vigilance observed.

(24) Other anti-malaria (mosquito measures): Anti mosquito measures in urban areas and in connection with roads, railways, bridges and other construction works should be strengthened.

(25) Each State should work out in details:

(1) the staff required.

(2) The number of persons in various categories requiring further orientation and training,

(3) Existing facilities for training and further facilities required, and

(4) Estimated expenditure including how much State Governments can bear.

(26) The Committee was of the opinion that the extra expenditure consequent on the augmentation of the staff of the general health services for purposes of vigilance in the maintenance phase should be borne by the Central Government and that assistance should be outside the State Plan ceiling

III. THE MAINTENANCE PHASE

1. After malaria has been eradicated from a country or its part, steps must be taken to prevent its resurgence and maintain the area free from malaria. This could only be done by vigilance and other measure, as in their absence, the risk of re-establishment of malarial is far too great and efforts and heavy expenditure hitherto incurred would be rendered totally infructuous. Failure in consolidation. Failure in consolidation the gains will be expensive in terms of money and costly to the health organization in terms of loss of prestige and public confidence.
2. There is nothing new in this concept as anything achieved in any field has to be maintained. Perhaps the world "maintenance phase" as a part of the malaria eradication programme is a function of a malaria eradication programme. However, it is considered as one of the phase of the programme because the maintenance of eradication is a condition *qua non* not only for starting but even planning as eradication programme.
3. Maintenance is a state of continuous vigilance. Its purpose is to maintain the malaria-free status of the areas from which malaria has been eradicated. Its objectives are the earliest detection of cases and institution of remedial measures.
4. Since the possibility of recurrence of malaria cases will exist so long as malaria is present within some parts of a State country or the World, vigilance will be an essential activity to prevent importation or reintroduction of the disease.
5. While certain technical and administrative criteria are required to be fulfilled before an area could be permitted to enter from the consolidation to the maintenance phase, certification of malaria eradication through World Health Organization could be sought at any time after an area has entered the maintenance phase, provided that the area involved is not less than 50,000 sq. kilo-meters or 20,000 sq. miles forming a complete block and that eradication is maintained. W.H.O. lists the country or a part therefore in the official Register. This is in accordance with the resolution passed in the Thirteenth World Health Assembly, 1960[†].

For the registration, it is necessary that the criteria area fulfilled (Appendix I). The criteria for confirmation of malaria eradication are based on technical and administrative considerations. The administrative criteria relate to the maturity, ability and competence of the health organization to undertake vigilance. Health services need facilities and personnel for the ready detection of malaria cases, examination of blood smears, capacity and competence to organize epidemiological investigations and to deal effectively and speedily with any importation of cases or re-establishment of transmission,. The special task force created for eradication has ultimately to be abolished in the maintenance phase and the personnel utilized as far as possible for the general health services.

6. The risk during the maintenance phase is from an imported case. It because important, therefore, to prevent the establishment of malaria in the eradicated areas through any case (cases) that may be imported. It appears that the danger of re-interdiction of malaria into the eradicated area has not yet been fully realized in many quarters.

[†] Thirteenth W.H.O Assembly Resolution No. 13,35, 1960

7. Ideally, the best pretension against re-introduction of a disease in a equality is to make it insusceptible to take root in the community. The risks consequent on any imported case of malaria are different from those of smallpox or plague. The introduction of a case of smallpox in a population protected by vaccination or introduction of a case of bubonic plague in an environment where rodent and fleas are under control is less dangerous than introducing a potent source of malaria infection in an area where vectors are present, the season favorable and potential reproduction rate high.

8. Activities.

8.1 The role of general health services in malaria eradication has, in the recent past, been over-shadowed by the massive malaria eradication organization. This has been the experience in most of the countries with malaria eradication programmes. However, as malaria eradication programme advanced towards consolidation and maintenance, it became more and more apparent that eradication and maintenance, it became more and more apparent that eradication cannot be sustained without the support of the general health services, capable of actively participating in the consolidation phase activities and taking over the responsibility for vigilance during the maintenance phase. Realising this problem, the W.H.O in 1960, recommended that, for all future programmes in developing countries with inadequate health services, pre-eradication activities are necessary before embarking on malaria eradication programmes. One of the chief function of the pre-eradication programme is to develop a rural health infra structure, which will in time cooperate with the malaria eradication programme and ultimately become responsible for vigilance for sustaining malaria eradication in the maintenance phase.

In India, areas under malaria eradication will be progressively entering the maintenance phase starting with 70-80 units in 1964. The health services in the areas entering the maintenance phase will have to be suitably augmented to meet the needs of vigilance for sustaining eradication.

The stage of development of rural health services varies from State to State, and even from area within the same state. In considering the adequacy of general health services in terms of total coverage it is necessary not only to consider the distribution and number of hospitals, health centers and other static curative centers but also what proportion of the population is at present utilizing these facilities. This is important from the point of view of maintenance of malaria eradication as vigilance has to be extended to the entire population in order to prevent the re-establishment of endemicity through imported cases.

Even in well developed areas it is a common knowledge that except for a population within a small radius of the curative institution, people in rural areas generally seek treatment only for painful conditions and for ailments that keep them off from work. While it is important to establish all the rural health centers and hospitals as planned, this present stage of schematic development of such institutions is not likely to provide a total coverage to the community. In the circumstances, it is considered that some form of domiciliary health care should be provided for the population as an intrinsic part of the basic health services. Such a domiciliary services could form the basis for integrating mass campaigns such as smallpox eradication in the maintenance phase into the general health services and also for undertaking future health programmes. This will be an investment towards building of a rural health services particularly for sustaining mass programmes.

8.2 In order to maintain malaria eradication after eradication has been achieved, vigilance has to be maintained over the entire population. This vigilance will involve the following:

1. Prompt detection and radical treatment of parasite carriers and their follow up;
2. Epidemiological investigation of positive cases and measure to eliminate foci; and
3. Periodic review of the status of malaria eradication and the adequacy of the vigilance system.

8.2.1 Detection of cases: The prevention of re-establishment of endemicity depends on the early detection and examination of infection. This must be done preferably before transmission occurs.

In general, case detection should be undertaken by all Static medical institutions such as hospitals, dispensaries health centers, private practitioners, etc. and in addition, by the rural domiciliary health worker.

8.2.1.1 Detection of cases in rural areas: As mentioned earlier, under existing conditions in rural areas of the country, static medical institutions cover only a small proportion of the population. In order to achieve total coverage, it is necessary to provide a domiciliary health services. This can be achieved by a multi-purpose domiciliary worker. It will not be necessary for him to take blood smears from every fever case and administer presumptive treatment as is done by malaria surveillance workers, during the consolidation phase. He will however, as a part of his normal duties, take blood smears from cases clinically suspected as malaria or inadequately explained fever case. He will also record all cases of fever so that any abnormal increase in un-explained fevers in his locality could be investigated. It is reckoned that this domiciliary health worker could cover on an average 10,000 population at monthly intervals.

The supervision of the work of this domiciliary health worker should come from the primary health centers. It would be advisable to have health inspectors as intermediate supervisors between the medical officer of the health centre and the peripheral worker.

8.2.1.2 Detection of cases- urban areas: Excepting for slum areas the urban population can be expected to seek treatment in hospitals dispensaries or from general practitioners as they have a higher standard of health awareness. Domiciliary service is therefore not a primary need in cities. However, in slum areas where the health consciousness of the people is not sufficiently awakened, domiciliary service will be required as in rural areas. Diagnostic facilities for fevers in static institutions in urban areas will have to be improved. This can be achieved by the provision of a clinical side room to each of these institutions. It should be emphasised that this diagnostic service should also be made available, free of cost, to medical practitioners in urban areas.

8.2.1.3 Strategic points of importation of cases: Overland inter-country routes, seaports, airports, etc. Will need special provision for the screening and wherever necessary follow up and treatment of persons arriving from known malarious areas.

8.2.1.4 Importance of providing diagnostic facilities for fever cases: The medical profession in India, as a rule, relies mostly on clinical findings for the diagnosis of fever. This is partly because of the lack of facilities for prompt microscopic examination of blood films. The provision of a technician, trained in routine blood smear examination, to each rural health

centre and urban medical institution will improve the diagnosis of fevers and incidentally help in the discovery of malaria cases that may be missed otherwise.

The District laboratory/Headquarter Hospital should have facilities for examination of blood films. The facilities for examination of blood smears at rural health centers and district laboratories/headquarter hospitals should be available, free of charge, to private medical practitioners and to the public.

8.2.2 Epidemiological Investigation and Measures to eliminate Foci:

Notification: It is of utmost importance that malaria must be declared a notifiable disease. It is fully realized that the implementation of notification of even the existing notifiable disease like smallpox and cholera in the country is extremely unsatisfactory. Smallpox and cholera are spectacular disease which may not remain hidden for long even when official notification is delayed. Their remedial action is also of short duration. On the other hand, malaria can remain undetected for long with consequent re-establishment of endemicity and the undoing of several years of malaria eradication effort. It is therefore malaria must be made a notifiable disease and to facilitate notification. Stamped and notification cards should be available to all centers including private medical clinics.

The district health organization should be strengthened by the addition of a medical officer responsible for all epidemiological investigation of malaria and other disease within the district. It should be his duty to keep track of all malaria cases reported and carry out the necessary investigations and direct remedial action.

8.2.3 Periodic Review of the Status of Malaria Eradication and the Adequacy of the Vigilance System.

At State Headquarters it will be necessary to maintain a close watch on the status of the malaria eradication. This should form a part of the State Epidemiological Intelligence Service. An adequately trained epidemiologist should be in charge of the services and it should be his responsibility to appraise the status of malaria eradication and the adequacy of the vigilance system. This appraisal should be done at least once every six months.

The State Epidemiological Service should also have a mobile epidemiological team, fully staffed with trained entomologists and laboratory technicians to undertake any special investigations in connection with foci of infection reported from the districts.

8.3 The malaria eradication organization which has been developed with considerable effort has stood the test of a high standard of efficiency that are required in implementing the eradication programme. The staff is disciplined and used to hard field work. The experience of these workers is something that the health services in the country can ill afford to lose. This pattern of organization can be utilized with advantage in the future development of rural health services for sustaining not only malaria eradication but also many other mass campaigns. It is therefore, suggested that, instead of totally disbanding the malaria eradication service, it should be suitably adapted to form the matrix or the basis of future rural health organization.

IV. STATUS OF NATIONAL MALARIA ERADICATION PROGRAMME IN INDIA AND THE EXISTING SITUATION IN FIVE STATES ENTERING MAINTENANCE PHASE IN 1964

Shortly after the Independence, the Planning Commission considered in 1951 the recommendations of the Health Survey and Development Committee popularly known as Bhore Committee (1946) and recommended malaria control programme on an all India basis and give it a top priority.

2. The National Malaria Control Programme:

The programme for nation-wide malaria control was drafted in 1952 by the Director, Malaria Institute of India (now National Institute of Communicable Disease) in association with State Health authorities and international agencies.

The plan envisaged a continuing programme continuing of;

- 1) An immediate “Operational” phase extending over 3 years, and
- 2) A “Maintenance” phase continuing indefinitely, requiring alert watchfulness and continued control operation, reduced in scale, if necessary.

Saturday, December 13, 1952, will be remembered as a landmark in the history of malaria in India when the Operational Agreement between India and the United States of America was signed, stipulating assistance for malaria control.

The National Malaria Control Programme was started in 1953 aiming at progressive coverage of about two hundred million people living in endemic malarious areas within a period of five years. Two hundred units, each designed to cover about one million populations, were allotted by 1957. The year-wise progress and malariometric indices upto 1957-58 are given below:-

Statement showing the progress of the National Malaria (1953 -54 to 1957-58)

Year	No. of units functioning	Population protected in million	Child spleen rate	Child parasite rate	Infant parasite rate.	Proportionate care rate.
1953-54	84.00	49.51	15.7	3.9	1.6	10.8
1954-55	110.75	79.91	12.4	4.2	2.0	8.2
1955-56	133.75	112.00	7.7	1.7	0.7	6.2
1956-57	169.25	144.5	6.0	1.1	0.5	5.3
1957-58	192.50	165.57	4.2	0.8	0.6	4.4

The National Malaria Control Programme lasted for 5 years from 1953-54 to 1957-58 i.e. last three years in the first five Year Plan and first two years in the second plan period. By 1957-58 the reduction in child spleen, child parasite and infant parasite rates, compared to the figures of 1953-54, was to the extent of 73.2, 80 and 62.5% respectively. The proportional case rate (percentage of clinical malaria cases to all diseases treated in dispensaries and hospitals) fell from 10.8 in 1953-54 to 4.4 in 1957-58, a reduction by 60 per cent. Thus malaria toppled from its position as the leading public health problem in India.

3. The progressive reduction in the incidence of malaria was so striking that there was a population demand for its indefinite continuation. The control programme, however apart from being costly (about Rs. 5 crores a year), had its hazards like the appearance of resistance in mosquitoes to insecticides. In consultation with the State Governments and international agencies such as U.S. Agency for International Development and World Health Organisation, the Government of India, in 1958-59, decided to convert the control into an eradication programme, phased over a period of 8 years.

4. The National Malaria Eradication Programme:

During the first year, 1958-59, 30 more units were allotted bringing the total to 230 endemic units. During the following year, 160 hypo-endemic units were allotted: thus the whole country was covered by 390 units in 1960-51 and in another 20.5 units in 1961-62. The remaining 25.5 units, designated as border and problem area units, were to continue spray operation only till situation in neighboring countries and in some problem areas justified the institution of surveillance.

The progress of the Rational Malaria Eradication Programme is shown in the following table:

Year	No. of units functioning	Child spleen Rate	Child parasite rate	Infant parasite rate	Proportional case rate	No. of blood smears		Positivity rate per 1000 smears examined
						Examined (million)	Found positive	
1958-59	225.25	3.2	0.5	0.2	4.0			
1959-60	386.75	1.4	0.2	0.1	2.4			
1960-61	390.00	0.7	0.1	0.04	1.3			
1961	390	-	-	-	0.7	13.1	49151	3.75
1962	390	-	-	-	0.4	26.1	59675	2.30

After 4 year of activities, on the recommendations of independent appraisal teams, 140.47 units entered the consolidation phase in 1962, followed by 87.83 units in 1963. Thus, the total number of units in the consolidation phase is 223.30 covering about 251 million population. The number of units in the different phases of activities in 1963 and projected till the end of the Third Five Year Plan is:

Year	No. of Units		No. of Units		Total
	Attach Phase	Pre consolidation phase	Consolidation Phase	Maint. Phase	
1962-63	134.53	115.00	140.47	-	390
1963-64	36.00	127.70	228.30	-	392
1964-65	19.25	54.05	248.70	70	392
1965-66	5.50	23.52	154.07	208.91	392

Distribution of units that have entered the consolidation stage in 1962 and 1963 is shown in the Appendix 2.

5. The areas that are likely to enter the maintenance phase next year are in 2 blocks, one in the South, consisting of contiguous areas of Kerala, Madras and Mysore and the other in the North, of Bihar and Uttar Pradesh. They are separated and surrounded particularly in the north by areas still under attack and reconsolidation phases. A map is at Appendix 3.

The possibility of some more units entering the maintenance phase is being explored. It is likely that 3.5 - 4 units in Maharashtra and about 5 units in the Punjab may be ready to enter the maintenance phase from the next year. However, much would depend on certain epidemiological studies being undertaken.

6. The organisational and administrative facilities available at present in these areas are discussed below:-

6.1. **Medical Institutions**[‡]

The number of medical institutions varies from State to State and also in the same State from district to district.

6.1.1. **Urban Areas:** Excepting some townships and notified areas facilities for medical aid including hospitals and dispensaries are more adequate and the number of the private medical practitioners more than in rural areas. Number of cases represented by their friends and relatives for taking medical aid cannot be precisely assessed but it appears to be less than in rural areas.

6.1.2. **Rural Areas:** In Bihar, in the second year consolidation areas, there is one medical institution other than sub-centres for every 52,590 population. The sub-centres differ from those of the rest of the country excepting in Rajasthan in having an auxiliary health worker. The number of medical institutions including the sub-centres works out to be on ratio of 1 per about 24,000 population (Appendix 4).

In Mysore, the old Mysore area is more generously served than the newly integrated areas. On an average there is a medical institution for every 15,600 population the ratio varies from 1 per 7,000 to 1 per 26,000 (Appendix 5). To ensure uniform coverage, since 1961 the state is working on plan to provide at least one medical institution for a block (not a Community Development Block) of about 15,000 population, and has divided each district into such blocks (Appendix 5).

In Uttar Pradesh, there is one medical institution for every 50,000 population. In addition, there are 496 M.C.H. centres (Appendix 6).

In Kerala, there are more medical institutions in the Travancore-Cochin area than in the Malabar area and more in coastal areas. On an average, there is one medical institution for every 42,500. There are 673 M.C.H. centres. These are not attended by medical officers (Appendix 7).

In Madras there is one medical institution for every 35,560 (Appendix 8).

In Punjab, there is a medical institution for every 25,000 population (Appendix 9).

The distribution of various types of medical institutions is uneven and they do not adequately cover the needs of the people. The effective physical coverage with reference to people seeking medical aid appears to lie within a radius of 2 miles. Though the effective radius of

[‡] They include dispensaries and hospitals (modern or indigenous medicine) run by Government and non-government agencies other than the private dispensaries, chambers or clinics of private medical practitioners and special institutions like leprosy, cancer, tuberculosis, etc.

an institution for malaria detection work cannot be estimated now, it may vary with the type and popularity of an institution and other local conditions. Cases (fever cases included) attending dispensaries are liberally represented by relatives and friends. Although according to the present scheme of development, more primary health centres are likely to be established these are not likely to provide adequate coverage to the rural population.

Medical practitioners are few and far between in rural areas. In Mysore for example, the number of private medical practitioners varies from: 1 for 4,586 people in South Kanara district to 1 for 4,2,408 in Gulbarga district. The average for the State of Mysore is however 1 for 9,378.

Although private clinics are about twice the number of medical institutions in rural areas, their contribution to medical welfare, judged by the number of the attending patients, is not proportionately large.

Only slightly less than-one-third of doctors in rural areas practice modern medicine. Compounders constitute about one-fifth of the number of practitioners of modern medicine[§].

The fact remains that large groups of population are not covered by either medical institutions or medical practitioners and are not likely to be covered for quite sometime to come.

6.2. **Passive Surveillance:**

The success of passive surveillance varies from State to State. The percentage of slides collected in 1952 under passive surveillance with respect to active surveillance varies from 6.7 to 30.5. The figure is even below 5 per cent in nearly two-thirds of the units in one State. Pooled results of the five States indicate that the percentage of slides examined/collected through passive surveillance in 1962 was less than 10 in nearly one-third of the units and varied from 10 to 20 in another one-third of these units. In other words, hardly one-third of the units examined/collected slides more than 20 per cent through passive surveillance. During the first quarter of 1963 in only one State there had been a distinct rise in passive surveillance slides.

Medical Officers of Government and municipal medical institutions, barring a few exceptions, have yet to show active interest in the case detection programme of the malaria eradication campaign. They have not considered it as their normal responsibility. Whatever has been the response is due to the presence of surveillance workers, who have taken blood smears on their behalf, during the time when they were present.

Most private medical practitioners are also indifferent. The possible causes are:

- (1) Many doctors sincerely believe that malaria has disappeared from the country and that there is no possibility for its reappearance.
- (2) Most of them also do not realize the implications of passive surveillance operations. They resent tailing blood smears from cases other than clinical and suspected malaria. It is

[§] The National Sample Survey Thirteenth Round: September 1947 - May 1958.
No. 64. The Cabinet Secretariat, Government of India 1962.

surprising when it is realized that 16,620 malaria cases have been confirmed from about 38 lakh blood smears collected through passive surveillance and examined during 1961 and 1962 and that most of these cases are those that were clinically not malaria.

Yong-doctors do not appear to be adequately oriented/towards malaria programme. Even many undergraduate students have had no chance to stain blood slides for malaria parasites. Even orientation training "centres for rural health personnel have not been attaching sufficient importance.

Medical institutions are understaffed and medical officers are too busy.

6.3. **Notification:**

The list of notifiable diseases varies in urban and rural areas. In rural areas, cases are seldom notified and deaths incompletely. The last of notifiable diseases varies in the urban areas from municipality to municipality. Here again it is the deaths that are more completely notified. Notification of malaria in rural areas is sufficient but major not be impossible to organise.

6.4. **Laboratory facilities:**

Outside the malaria organisation, diagnostic facilities are almost non-existent. Quite a few primary health centres microscopes but no laboratory technician on the staff. Microscopes are seldom used,

Expecting in one State there is no laboratory technician or microscopist at the sub-divisional level hospital.

Host of the States have got some sort of a district laboratory. They are usually understaffed, ill-equipped and some of them form part of a district hospital where they are functioning more as a clinical side-room.

6.5. **Facilities for epidemiological investigations:**

At the State level, there is an epidemiological organisation excepting in one State where it is likely to be, established shortly. The epidemiological organisation, where it exists, is in a rudimentary stage and so inadequately staffed "that it is not possible to provide the general-direction and guidance in the control of communicable diseases nor do they have the staff to undertake investigations except through whether few and untrained staff are available either at the district or lower levels.

6.6 Organisational structure:

6.6.1 State level

The organizational structure, necessary at the State level to provide supervision, guidance and advice to the followed by the rural health services, is incomplete. The fortunate exception is, of course, the malaria organisation.

6.6.2 Intermediate level:

District: The weakest element of the structure seems to be at this level. In fact almost everywhere the basic responsibility of immediate guidance and supervision of the local institutions is fulfilled incompletely or not at all. The two supervisory senior officers (Civil Surgeon and District Health Officers) are overburdened with multifarious activities in hospitals or in other health and office work and no time is available for periodic visits to or

for regularly checking the records or, not to speak of providing any guidance to, the peripheral units. In some States, the supervision of peripheral units is divided between those two officers.

Added to their burden are the changes, brought or being brought about by the decentralization of administration in rural areas, resulting in the dual control of health activities and of the personnel. The difficulty will continue unless the organizational changes are stabilized and a clearer picture emerges.

The State regional or divisional organization where they exist, are similarly incompletely staffed and thus incapable of providing necessary supervision and guidance.

Health Personnel:

Operational level: Health personnel at the periphery such as Sanitary Inspector/Health Assistant, midwife and lady health visitors, vary in number from State to State and in the same State from area to area. For example, in Kerala, there is a sanitary inspector or Health Assistant for every 20,000 population and one midwife per 5,000 population, in the old Travancore-Cochin area. In Malabar area (3 districts) there is a Health Assistant for 75,000 and midwife for 25,000 population.

In Mysore, in Malnad area, there is a Sanitary Inspector for every 15,000 population and midwife for every 5,000 population.

In Uttar Pradesh, there is a Sanitary Inspector for a population of about 40,000 to 60,000.

In Bihar, there is a sanitary health inspector for a population of about 39,000 and vaccinator for every 20,000 population. There is an auxiliary health worker in each subcentre and the usual number of female personnel.

In Madras, with democratic decentralisation, Circle Inspectors have disappeared. In a panchayat union, there are a Health Inspector and 1 to 2 health Assistants or vaccinators (1 for a Union with a population of 70,000 or less and 2 for a population of over 70,000) where a primary health centre exists, there are four auxiliary nurse midwives/midwives and a Lady Health Visitor.

In Punjab, there is a sanitary inspector for every 53,000 population. In addition where, there is a primary health centre, there are 1 or 2 lady health visitors and 4 auxiliary nurse midwives.

On scanning namely, the existing National health programme, namely malaria, smallpox, filarial, tuberculosis, leprosy, venereal diseases, etc., the only programme that has near full complement of personnel is the Malaria Eradication Service, but taking all the services as a whole, the existing personnel will be found to be grossly insufficient.

7. Lessons learnt on administration and organisation from the Malaria Eradication Programme.

(1) The single most important administrative element that has been demonstrated to be essential for the success of the programme is the vertical channel of continuous supervisor from the central to the peripheral level. The current progress of malaria eradication is almost exclusively due to the checks and counter-checks at various echelons.

(2) Decentralisation of administrative authority with retention of a single central technical direction is another feature that has proved to be essential for efficiency.

(3) Continuous process of technical guidance and administrative management, provided for in the malaria eradication service, is such that no single member of the service feels isolated in the technical-field.

(4) Continuous, evaluation in addition to periodic independent evaluation has provided efficiency and at the same time necessary flexibility to the programme.

An efficient service has already been built over a number of years. It provides features which can be built into the existing national health. programmes. This may be. useful in invigorating the philosophy and broadening of the objective of the local health services by (1) extending the services to cover the entire population beyond the usually heavily populated and readily accessible,-areas; (2) accepting responsibility for complete prevention-of presentable disease en its programme and not being satisfied with only maintaining each communicable disease below the. level at which it is considered "an important public health problem;" and (3) getting out of the essentiality polyclinic services mentality.

V. RECOMMENDATIONS

1. Vigilance through institutions

Institutional case detection should continue more extensively and intensively than ever before. All states should be directed to activate all existing medical institutions, Government and non-Government. All private medical practitioners, irrespective of the system of medicine they profess, and all professional and other healthy workers should be harnessed. The members block development committees, panchayats, taluk boards, goan sabhas, gram panchayats, panchayat samithis, mahila mandals, youth clubs and any other voluntary local body, school teachers and other should participate and efforts must be made to enlist their co-operation so that every village, hamlet or locality has one “ Voluntary Collaboration”. The interest of doctors requires to be periodically stimulated through the academic conferences or personal discussions. They must be kept continuously impressed that examination of blood smears is an essential part of accurate diagnosis of fever cases which constitute the largest groups of sickness and is a task of priority at least for 2-3 years after an area enters maintenance phase. An offer of facilities for simple laboratory investigations, free of charge, may go a long way in the freer flow of blood smears. Medical officers of public institutions should ensure that arrangements are available at all times for obtaining blood smears as and when necessary.

Fortunately there are already instances of clinicians overlooking the possibility of malaria as a cause of fever. The fact that malaria is still a risk in the country should be instilled in the minds of all members of the medical profession.

It is necessary to ensure that passive surveillance institutions operate fully and satisfactorily and to give constant debriefing or retraining in such matters as preparation of slides, their examination, etc.

2. Domiciliary services

Domiciliary service is a recognised, well tried practice that has stood the test of time. It is this service that brings a health organisation into close touch with the community and ultimately reduces burden on the health organisation itself. It brings services to the people at home through a regular system of visits to villages and houses. The consensus of view is that, in the present situation of the country, institutional detection of cases cannot alone be depended upon for the detection of all cases and as such multipurpose domiciliary services are absolutely necessary. As a part of the normal duties a worker's activities will include taking of blood slides from all suspected cases of malaria and inadequately explained fevers and timely detection at an outbreak.

3. Screening criteria

For institutional vigilance all over, cases should be screened for at least 2-3 years and subsequently only suspected malaria including all intermittent and inadequately explained fever cases.

4. Notification

An early notification is essential. Statutory notification helps in bringing forth the awareness of the situation in the minds of the people and also help the workers. Malaria should be decigram as a notifiable disease. Facilities should be provided to medical practitioners at least in the form of prepaid, self addressed cards.

Every efforts should be made to obtain information regarding the occurrence of fever cases from as many sources as possible. In addition to whatever normal agencies exist, the services of school teachers, members of gram panchayats and other voluntary agencies should be enlisted for reporting to the nearest vigilance agencies.

5. Medical Institutions.

All efforts should be made to establish medical institutions particularly dispensaries and primary health centres planned during the third plan period, specially in the areas entering the maintenance phase. The States that have a plan programme of establishing every year a certain number of midwifery or MCH centres should give priority to such areas.

6. Vigilance in different areas:

6.1 Urban areas:

Institutional case detection should be the mainstay. However, *** and fringe areas would require supplemental case detection programme through domiciliary services. Major institutions, particularly those with an average daily outpatients attendance of new cases of about 200 or more should have the services of a person for taking clinical samples including blood smears. These institutions, particularly those with a sizeable indoor department should have separate clinical side-room for improved diagnostic facilities. The services may be available for all private medical practitioners in the area.

6.2. Rural areas:

Owing to the incomplete and uneven coverage by medical institutions and liberal representation of cases by proxy at dispensaries institutional case detection alone will not be sufficient. It has to be supplemented by regular domiciliary services for detection of fever cases and for taking blood smears from all suspected cases including intermittent and inadequately explained fewer cases. So far during the consolidation phase such visits are carried out at fortnightly intervals. It is felt that monthly visit is the minimum essential to ensure an effective check on detection of cases.

7. Remedial measures

Remedial measures that may be required on the notification of a confirmed case include

- a) epidemiological investigation,
- b) radical treatment,
- c) Focal spray,
- d) mass blood survey in as short a period as possible, but In no case, beyond one week,
- e) parasitological follow-up and
- f) health education.

8. Health organisation needed for vigilance

8.1. The various activities during the maintenance phase necessitate that

1) health services be adequate and properly distributed throughout the area;

2) general health service maintain a nucleus of highly trained and experienced malaria eradication personnel, strategically distributed all over the country so that they can immediately deal the sporadic outbreak. They may be assigned to any public health work but they must be available for specialised duties in relation to malaria ready to be dispatched wherever necessary.

3) One or core epidemiological units, consisting of malaria specialised members, be available for providing expert guidance.

4) Periodic review of the status of freedom from malaria and the adequacy of vigilance.

Besides malaria, the attack phase of the smallpox eradication programme will be completed in about two years and its maintenance phase necessarily revolves on the basic health services. Our hopes for a major advance against tuberculosis and leprosy based on domiciliary chemotherapy depend largely on the active participation of the network of health centres. Failure in absorbing the special programmes in the health services, particularly in rural areas will seriously delay the institution of other programmes which are now on the waiting list.

Primary health centres have been planned, as a focal point from which all health services should radiate. Strengthening of the staff and reduction of population coverage recommended by various Committees could not be implemented on account of the shortage of trained personnel and funds. Pooling of resources and their maximum utilisation are indicated.

In order to strengthen family planning services in rural areas, each primary health centres will have at least 6 sub-centres instead of 3, each staffed by an auxiliary nurse-midwife or a family welfare worker, for a population of about 10,000 and also one family planning field worker (male) will be assigned for 30,000 population. It was felt that this basic structure should be further strengthened in such a way that current programmes be undertaken with more efficiency than at present and that a more stable base be laid down. This will help in undertaking future public health programmes with much less cost and additional personnel.

Duties of a family planning field worker (male) are at Appendix 10.

8.2. Primary Health Centre Level:

8.2.1. The Committee was of the view that the basic unit to have effective control over communicable diseases and to provide preventive health care should cover a population of not more than 5,000. However, in view of the limitations of financial and material resources, such a unit should cover not more than 10,000 population, though the ultimate target should be 5,000.

The basic unit to cover about 10,000 population for the present, should be considered as a sub-centre. Number of such sub-centres will naturally vary depending on the population and terrain of a block. Each sub-centre will provide elementary medical care, detection and prevention of communicable disease, maternity and child health, family planning, basic environmental sanitation and health education. Each sub-centre should be staffed by a midwife or an auxiliary nurse-midwife or family welfare worker and a auxiliary health assistant.

8.2.2 At the main centre, in addition to the existing post of sanitary inspector, there will be, under the Family Planning Programme, an Extension Educator, who will be a graduate with six months' training in general health with emphasis on extension education on family planning. He may be utilised in strengthening educational aspects of all types of programmes.

8.2.3 The importance of strict supervision of the work particularly of the domiciliary services cannot be over emphasized. Otherwise, in malaria for example, cases may slowly build up without being detected. The existing-one Sanitary Inspector in a block is very inadequate. He has a full time job for sanitation work, which is bound to increase-more and more in future years. Ideally there should be 1 health inspector for 10,000 population. This may not be feasible at present. In addition to the existing one at the block headquarters, there should be at least 1 health inspector for every 20,000 to 25,000 population. He should be responsible for all health activities. He will also complement, guide and supervise, to the extent possible all health services including domiciliary services under the overall control of the medical officer in charge. The senior most of the Inspectors may be designated as Senior Health/Sanitary Inspector.

The basic staff should be in position by the 31st March, 1964 if necessary, in rented buildings in areas where primary health centres have not yet been established.

Coordination of the activities of the various auxiliary-health personnel working in the field, some of them having different responsibilities, is absolutely necessary in the interest of economy and efficiency of work. The working relations between Block Development Officer and health staff should be rationalised so that there is a direct line of command for all health personnel.

Facilities for blood smear examination should be adequate and the results of the examination be communicated within 24-48 hours but not later than 72 hours. The delay in communicating the results including negative findings is probably one of the most important reasons of inactive cooperation of medical practitioners. A confirmed case should be notified by the quickest means, if necessary, by telephone or telegraph. These requirements would mean decentralization of facilities. Each primary health centre should have a microscope and a laboratory technician, who will conduct simple laboratory examinations giving portion parasites. Pending the establishment of the primary health centre, a microscope and a laboratory technician may be placed in a suitably selected dispensary in a block or panchayat union area.

8.2.5 Wherever possible, there should be two medical officers for a primary health centre.

8.2.6 For urban areas:

Staff are required for

- 1) domiciliary vigilance in slum areas; and
- 2) laboratory investigations.

8.3 Intermediate levels:

8.3.1 District level: Work load includes.

1. close supervision of domiciliary services.
2. Activation of passive case detection through personal contact:
3. Conduct of epidemiological investigations and remedial measures; and
4. Supervision of laboratory work at district and lower levels. The nature of work demands that the officer will have to tour 15-20 days a month.

8.3.1.1. The work load will be too heavy for the existing district health officer. An additional officer is required to assist the health officer in the discharge of his responsibilities

efficiently. He should be a medical officer trained in malaria and may be selected from out of the unit medical officers. His main job would be that of a district epidemiological officer. He should be in charge of public health programmes, providing supervision, carrying out epidemiological investigations and remedial actions, under the overall supervision of the District Medical Officer of Health. For a period of about three years subsequent to the entry of an area into the maintenance phase, he should concentrate mostly on malaria. He should be assisted by a reasonable number of health supervisors approximately on the basis of one for every 6 or 7 blocks.

8.3.1.2 Facilities should be provided at each district laboratory or district headquarter hospital for examination of blood smears, which should be kept a separate entity under the direct supervision of the assistant district health officer for a period of at least 12 to 3 years after an area has entered the eradication phase.

8.3.2 Zonal level

Existing State regional or Divisional Health Offices should be strengthened by a medical officer trained or having experience in epidemiology and malaria. Otherwise the existing N.M.E.F. zonal offices should be converted into regional health offices.

8.4. State level

A state Malaria Officer preferably of the rank of Deputy Director in charge of malaria and other communicable diseases will be required for overall guidance and supervision. He should continue to be responsible primarily for these duties for at least two to three years after the State has entered the maintenance phase in entirety. He should be assisted by a medical officer for carrying out and supervising epidemiological investigations and remedial actions. The State Malaria laboratories should merge into the State Public Health laboratories so that every public health laboratory has a malaria section. The laboratory at the State level should be staffed with at least one entomologist, one senior laboratory technician entomological assistants and microscopists on a required basis (microscopists to cross-check 5 per cent, of blood smears).

8.5. The above recommended organisation may be used as a guide and may be suitably amended to suit the local requirements but keeping the essentials intact.

8.5. CENTRAL LEVEL

8.6.1. Regional Coordinating Organisation.

Regional Coordinating Organisations under the Central Government have contributed in a large measure to the success of the programme by efficient inter-state coordination, intra-State supervision and guidance of actual field operations and continuous training of personnel. In view of the expansion of activities of health services, and the necessity of decentralised control, advise and guidance in the various aspects of health development, it will be desirable that this organisation should continue as nucleus which should be developed into regional office of the Directorate Central of Health Services. In a country like ours with large population and extensive areas, it is perhaps not possible to exercise efficient coordination and guidance from the Centre only. It may be added that a similar arrangement exists even in advanced countries like United States of America, where besides the Headquarters; there are nine regional offices for interstate coordination and technical guidance and advice.

8.6.2. The Central organisation of National Malaria Eradication Programme should be retained on a modified scale for at least 2 to 3 years after the eradication has been achieved over the whole country. It may be added that the countries that have achieved-eradication are maintaining a Central Organisation on a reduced scale. This is considered essential to review periodically and evaluate the status of eradication of the country to provide technical guidance and to carry out epidemiological investigation and coordinate logistics.

Organisational charts showing the present National Malaria Eradication Organisations and the health organization strengthened particularly, for sustaining mass programmes and also showing the development of staff from various source, at Appendices 11 and 12.

9. Logistics.

Equipment and stores should remain at the district level under the direct charge of District Health Officer. However a few sprayers and a small quantity of DOT should be stored at lower level.

10. Transport

Transport will be required for:

Deputy Director Health Services in charge Malaria and Communicable Diseases.	1
Regional Health Officer	1
District Health Officer	1
He has no transport.	
Assistant District Health Officer	1
Health Supervisor	1

The Senior Health inspector who will provide supervision in a block area should have an easy and quick means of independent transport. A cycle with a suitable allowance is a must. All health workers and inspectors should be provided with or maintain cycles with cycle allowance.

11. Other anti-mosquito measures

Now, since malaria is being eradicated no organisation must be allowed to endanger or undo what has been achieved on such grounds as shortage of funds, etc. In fact, all anti-mosquito measures should be strengthened. These will have a salutary effect on all mosquito-borne disease. Existing rules, if any, should be revised and where no rule exists, they should be framed. These refer to Government institutions, municipalities zilla parish ads, private and private and public undertakings and in connection with roads, railways, bridges, culverts, burrow pits, impounded water storage, canals, factories, etc. including the establishment of factories.

The importance of undertaking antilarval work by municipalities-etc cannot be over-emphasized in the interest of various types of mosquito-borne diseases.

12. Health education.

Success of vigilance operations depends to a large extent on the co-operation of the various categories of people, government officials, medical professions both in Government and the private practice and above all the public It is needless to mention the importance of

developing a sense of participation and responsibility in the implementation and success among all groups of workers and above all the community.

13. International considerations

The existing International Sanitary Regulations provide sufficient protection against the importance of mosquitoes provided that they are rigidly applied.

Article 103 of the I.S.R. permits special measures in respect of migrants, seasonal workers or persons taking-part in periodic mass congregations, The special measures-have not been defined. Overland inter-country routes, sea and airports may need special provision for screening, following up and treatment of persons arriving from known malarious areas.. This may be organised at ports through port health authorities. It may be necessary to provide facilities for on-the-spot examination of blood smears at larger ports. The Expert Committee on Malaria (in their 9th report) has recommended that "a special group of experts in malaria and international quarantine should be convened at the earliest opportunity to consider and make recommendations on the methods to be employed as a protection against the danger Of importation of malaria by the groups listed' in Article 103 of the I.S.Rs or by other groups or individuals not included under this regulation."

14. Inter-country coordination

We are co-ordinating our programme with our three neighbouring countries, Burma, Pakistan and Nepal. Cooperation has been forthcoming from the health organizations of the countries, thanks to the good offices of the W.H.O. We should continue to extend our efforts to our mutual benefits.

15. Utilisation of N.M.E.P. disbanded staff

A large number of N.M.E.P. staff will be surplus. Some of there are highly trained and experienced in epidemic logical investigation of malaria cases and all of them have wide experience in the field particularly in the approach to the people and basic health education methods. It is in the interest of the country health programmes that they should be utilized with necessary training on a priority basis. They will infuse a new spirit of urgency of dealing with a problem as they did with malaria, provided that the same supervision and camaraderie continue to guide them.

16. Training

16.1. Objectives:

To make health workers to undertake efficiently multipurpose domiciliary health services. Priority should be given to job training of workers at execution level and training in malaria, epidemiology and supervision to supervisors.

Two broad categories of health staff will require training

- A) Existing health personnel; and
- B) N.M.E.P. staff.

The existing health personnel may be given a short orientation in malaria.

For N.M.E.P. staff, two types of training are envisaged.

i) Short orientation on the health programmes that are undertaken at the time to snake then fit to undertake the job immediately, Initially training should be for a month followed by

periodic seminars. Further orientation courses should be given whenever new programmes are introduced.

ii) Long, regular courses.

A certain percentage of the personnel should be given facilities every year to undertake long regular courses as health inspectors, laboratory technicians, auxiliary health workers, medical assistants etc.

16.3. In addition, the staff that do not find place in the above programme may be trained as optometrists, leprosy para-medical personnel, X-ray technicians, laboratory technicians, pharmacists, etc. Because of their wide experience in the field, short orientation courses will make them suitable as auxiliary personnel required for a number of health programmes.

16.4 The Central and State Governments should make immediate arrangements for various types of training short and long, so that we become ready to undertake the responsibility as soon as the units are ready. Arrangements are being made at the National Institute of Communicable Diseases for medical professional personnel. Training of other personnel should be undertaken in states.

17. Orientation of future health personnel towards malaria

Malaria will remain a potent force to contend with for the next few years. As such, in all training programmes at university level, undergraduate and post-graduate, and at non-university level of our future health personnel, doctors, public health engineers, post-graduates nurses, public health nurses health inspectors and all type of auxiliary personnel, due importance should continue to be given to malaria

18. Delineation of vulnerable areas and groups

Areas may be vulnerable either because they are adjacent to territories where eradication has not been achieved and are therefore specially liable to invasion or because they are centers for migrants, travelers and pilgrims. Vulnerable groups include pilgrims, labour forces, military and other. In a developing country like India, big construction work in connection with hydro-electric, irrigation, river valley and industrial projects, etc. may vary in number from time to time. As such, special care will need to be taken to delineate vulnerable groups or areas at periodic intervals.

19. The basic organizational structure needed for the maintenance of feeder from malaria and smallpox and for the implementation of other health programme have been laid down. It is necessary that each state should work out in detail.

- a) the staff required.
- b) the number of person in various categories requiring further orientation and training;
- c) existing facilities for training and further facilities required; and
- d) estimated expenditure, including how much the State Governments can bear.

20. Financial assistance:

The foregoing recommendations would necessitate the State Governments having to incur substantial sums on augmenting the staff at all levels of the general health services of the State. It was pointed out by all the representatives of the State Governments that, with their present resources, it would not be possible for the State Governments to shoulder this burden. It is, therefore, necessary that a measure of Central assistance for this purpose is made

available. In this context, it is understood that the Rational Development Council after a mid-term appraisal of the progress of health schemes, at its meeting held on the 8th and 9th November 1953, observed that the maintenance phase of the Malaria eradication Programme has to be provided for in the annual plans of the States. The Committee was of the view that the extra expenditure, consequent on the augmentation of the staff of the Central Health Services, for purpose of vigilance in the maintenance phase may be borne by the Central Government and that this assistance should be outside the State, plan ceiling. The question of financing the health schemes in the States had been discussed in the meetings of the Central Council of Health held at Madras on the 5th to 7th November, 1963. All the States had expressed considerable concern over the present pattern of assistance and limitation of working within the State financial ceilings.

21. Unless the vigilance services are established, the entry into the maintenance phase and the disbandment of NMEP organization will have disastrous effects as has been the experience in some countries.

Criteria for Malaria Eradication Extract from W.H.O. Expert Committee on Malaria Eighth Report – 1961.

4.1. Epidemiological criteria, for the confirmation of malaria eradication.

Definition:

Malaria may be assumed to have been eradicated when adequate surveillance operations have not revealed any evidence of transmission or residual endemicity, despite careful search, during three consecutive years.

To establish this claim in relation to a specific defined area, the following evidence is essential: -

(1) Proof of the adequacy of the surveillance

In areas where no-specific general measures of anopheline control or other measures which might obscure the presence of residual foci have been in operation during the at least the last two of these three years, proof of adequacy of surveillance can be based on detection mechanisms which are largely passive provided that facilities for accurate diagnosis and treatment are readily available to and within easy access of the entire population and are in fact utilized by them. When the accurate diagnostic facilities are less universally utilised, the surveillance, to be adequate must include a considerable element of active detection.

When measures such as anopheline control or mass treatment, which might-obscure the presence of malarious foci, have been practiced during these three years, the surveillance mechanism to be adequate should be of a very high quality. Further more, the microscopic examination of a number of blood slides equivalent to at least 10% of the population of the area concerned should have been completed since the date when the last indigenous case, other than a proven relapse, was confirmed.

When malaria has not previously been endemic, i.e. has not been present in a measurable incidence either of cases or of natural transmission over a succession of years but has appeared only in a small temporary focus, the required proof could be based on local studies carried out by general medical and public health institutions.

(2) Evidence that in this period of three years no indigenous cases originating within that time have been discovered.

(3) The evidence of a register of all malaria infections discovered-during that time, it being established beyond reasonable doubt that each case was either:

(a) imported, as shown by treating the case to its origin in an acknowledged malarious area;

(b) a relapse of a pre-existing infection, as shown by the history of the case and the absence of any associated cases in the neighbourhood of its origin.

Appendix – 2

Statement showing number of units in consolidation during 1962 and 1963.

Sl.No	State	Consolidation 1962 No. of Units	Consolidation 1962 No. of Units
1.	Andhra Pradesh	8.50	4.50
2.	Bihar	19.75	7.00
3.	Gujarat	10.34	3.87
4.	Kerala	13.50	1.00
5.	Madhya Pradesh	7.00	3.75
6.	Madras	23.00	7.45
7.	Maharashtra	10.30	7.61
S.	Mysore	10.33	3.65
9.	Orissa	3.25	0.75
10.	Punjab	6.25	7.01
11.	Rajasthan	6.00	2.62
12.	Uttar Pradesh	22.25	25.75
13.	West Bengal	-	12.37
14.	Himachal Pradesh	—	0.50
	Total	140.47	87.83

Appendix-4

BIHAR

Consolidated list of Medical Institutions or Towns in the district and the Sub-divisional rural areas of the sub-division forming para of 2nd year of consolidation areas during 1962-63.

Sr. No.	District	Population	Sub-Division	Locks	Primary Health Centres	Rural Dispensaries	Rural Dispensaries	Hosp.		MCH Centres	T.B. clinics	Leprosy Centres	Mobile Medical Unit	Other
						Govt.								
						1.	Patna	29,12,614	5					
2	Gaya	30,47,263	4	4	40	42	35	9	2	4	1	1	-	-
3	Shahbad	32,22,467	4	3	39	29	33	66	3	4	2	-	-	-
4	Saran	35,85,531	3	3	32	29	7	5	1	4	2	1	-	-
5	Champan	30,09,841	2	2	29	28	20	6	-	5	2	-	-	-
6	Muzaffarpur	41,16,320	3	3	25	37	23	6	1	3	1	1	-	-
7	Darbhang	44,23,363	3	38	23	23	3	7	-	5	1	1	-	-
8	Monghyr	33,84,897	4	32	16	22	12	7	1	5	1	2	-	-
9	Bhagalpur	17,15,128	2	17	17	21	17	6	-	3	1	3	-	-
10	Purnea	30,87,428	4	33	9	14	4	7	2	3	2	-	-	-
Total		3,31,31,852	34	318	253	275	201	71	14	45	14	9	-	1

Appendix-5

Consolidated list of medical institution district-wise MYSORE

S.No	District	Population	Taluk	Blocks	PHC Govt. of India Type	Civil Dispensaries	R.S. Dispensaries	RSLF Dispensaries	Combined dispensaries	Ayurvedic & Unani Dispensaries	Plantation Dispensaries	PWD Forest & Railway Dispensaries	Private Dispensaries	Rural SMP Dispensaries	Hospital	MCH Centre	Mobile Medical Unit
1	2	3	4	5	6	7	8	9	10	11	12	14	15	16	17	18	19
1	Coorg	3,21,516	3	3	-	16	-	-	-	-	1	-	-	-	24	3	1
2	Bellary	9,74,483	7	12	1	-	6	6	4	12 (AY)	-	-	-	-	2	-	-
3	Mandya	8,98,553	7	9	-	-	14	-	6	16	-	2	-	-	8	7	-
4	Chickmangalur	5,95,849	7	5	-	-	6	-	-	7	-	-	-	-	4	-	-
5	Suth Kanaya	562,699	7	16	1	-	27	-	-	-	-	-	2	10	2	8	1
6	Tumkar	1,366,732	10	15	1	-	-	28	8	26	-	-	2	-	2	-	-
7	Bangalore	1,229,633	11	16	1	-	16	7	8	21	-	2	-	-	-	-	-
8	Chitra-Durga	1,094,128	-	-	-	-	19	14	2	11	-	1	-	-	2	10	-
9	Dharwar	1,375,886	16	14	1	-	7	-	1	9	-	-	-	27	4	-	-
10	Mysore	1,416,350	11	18	1	-	18	3	2	34	-	-	-	-	2	-	3
11	Hassan	839,379	8	11	1	-	10	1	4	27	-	-	-	-	3	16	1
12	Kolar	1,145,022	11	15	8	-	35	9	10	12	-	-	-	-	2	10	1
Tot		13,019,720	107	146	15	16	158	68	45	175	1	5	4	37	55	54	8

Appendix-6

STATEMENT SHOWING CONSOLIDATED LIST OF MEDICAL INSTITUTIONS INCLUDED IN THE AREAS PROJECTED FOR ENTRY INTO MAINTENANCE PHASE- UTTAR PRADESH

S.No	Name of District	population	tehsils	Blocks	No. of Primary Health Centres	Dispensaries		Hospitals		MCH Centres		T.B. Clinics	Leprosy Centres	Mobile Medical Units	Other Indigenous dispensaries	Family Planning Centres
						Govt.	Non Govt.	Govt.	Non Govt.	Govt.	Non Govt.					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.	Allahabad	25,19,963	8	27.5	7	13	18	8	5	60	5	2	1	1	25	17
2.	Barabanki	14,46,287	4	16.5	7	12	9	4	-	34	n.a.	-	1	-	11	8
3.	Deoria	16,68,783	4	29.5	10	6	-	2	-	41	2	1	1	-	24	10
4.	Gorakhpur	5,39,371	4	31.00	7	4	1	3	1	2	2	1	2	-	1	Na
5.	Kanpur	15,92,173	6	20.5	7	48	7	15	1	19	-	1	1	1	23	Na
6.	Lucknow	18,95,815	3	10.0	7	16	15	7	5	36	Na	2	1	2	25	18
7.	Unnao	12,63,859	4	16.0	6	10	3	5	-	31	1	-	-	-	22	9
8.	Varanasi	23,08,195	4	22.5	11	14	9	20	4	42	Na	2	3	1	33	3
9.	Azamgarh	12,48,032	6	29.5	6	6	-	4	-	33	Na	-	-	-	9	8
10.	Faizavbad	8,94,188	4	18.5	3	1	3	-	-	19	Na	-	-	-	7	Na
11.	Fatehpur	11,16,350	3	13.0	6	12	3	5	1	29	Na	-	-	-	17	8
12.	Ghazipur	13,62,445	4	116	4	9	3	4	-	29	Na	1	-	-	14	10
13.	Jaunpur	17,76,402	5	20.0	9	9	6	5	2	38	Na	1	-	-	19	12
14.	Pratapgarh	12,83,788	3	15.0	6	7	8	4	-	36	Na	-	-	-	14	12
15.	Rai Bareli	13,52,832	4	16.5	6	7	13	3	-	32	Na	1	-	-	11	15
16.	Sultanpur	17,75,634	4	19.5	5	12	1	6	3	33	Na	1	-	-	13	14
					107	185	99	95	22	514	11	13	10	6	268	154

Staff pattern:

1. Primary Health Centre, Government of India
2. Maternity & Child Health Centres
3. Indigenous Dispensary
4. Midwife – 1
5. Dai – 1
6. Doctor – 1
7. Compounder – 1

CONSOLIDATED LIST OF MEDICAL INSTITUTES DISTRICT WISE- KERALA STATE 1963

APPENDIX-7

sS.No.	District	Tehsils	Blocks	Hospitals	S.I.C. (Taluk) **	PHC/PHU ††	Rural Dispensary	TMD	MCH Centres	T.B.Clinics	Leprosy Centres	B.W. Dispensary	Iti Dispensary	Mobile unit	**Mid wifery centres	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.	Trivandrum	4	12	15	2	15	13	8	1	1	-	1	-	-	86	139
2.	Quilon	6	17	8	-	13	16	1	-	3	-	1	1	-	80	122
3.	Alleprey	7	18	9	1	14	13	-	-	1	2	1	-	-	73	113
4.	Kottayam	8	13	6	1	7	17	1	1	-	-	6	-	-	64	103
5.	Ernakulam	7	20	12	1	14	26	-	1	1	-	5	-	-	93	153
6.	Trichur	5	18	10	1	11	15	-	-	-	2	4	1	-	94	138
7.	Palghat	6	17	8	1	11	24	-	-	-	1	-	4	1	57	107
8.	Kozhikode	6	23	11	-	12	20	-	-	-	-	-	-	1	64	108
9.	Cannancre	6	12	5	1	8	23	-	-	-	2	2	-	-	63	104
	Total			82	8	104	167	10	3	6	7	19	6	2	673	1,087

Note: P.H.C./P.H.U=Primary Health Centre/Unit
S.H.C.= Secondary Health Centres
T.M.D.=Temporary malaria Dispensary
Margining to Hospitals now only I.S.M.C. at Neyyattinkara

M.C.H.= maternity & Child Health Centres
Iti . Disp.= Itinerary Dispensary
Mob. Disp.= Mobile Dispensary

Coverage 25,000 - 30,000

†† P.H.O. L.M.O. -1; Clerk -1

** Midwifery centres include Sub-Centres

CONSOLIDATED LIST OF MEDICAL INSTITUTIONS MADRAS

APPENDIX- 8

S.No.	Name of the	Population (in millions)	No. of Taluks	No of blocks	No. of Primary Health Centres	No. of Hospitals		No of Dispensaries		Mobile Medical Units	Subsidized	Non Subsidized	Leprosy subsidiary centres/clinics etc.	Panchayat union dispensaries	Principal institutions
						Govt.	Non Govt	Govt.	Non Govt.						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.	North Arcot	2.86	10	36	10	14	6	3	-	1	8	-	3	111	3
2.	South Arcot	2.78	7	35	10	13	6	4	2	-	5	-	5	18	5
3.	Chinglepur	1.85	7	27	11	6	1	5	2	1	8	-	2	13	4
4.	Coimbatore	3.15	4	41	23	8	3	12	2	1	11	3	-	2	11
5.	Kanyakumari	0.83	4	9	6	4	1	11	-	-	-	-	2	-	-
6.	Madurai	2.51	6	34	14	14	5	2	7	1	2	1	2	15	7
7.	Nilgiris	0.31	2	4	3	6	-	2	-	2	-	-	-	5	5
8.	Ramanathapuram	2.08	7	32	15	21	3	6	3	1	-	-	1	31	3
9.	Salem	3.37	8	51	9	19	-	2	1	1	12	3	2	16	-
10.	Thaninvur	2.98	9	36	14	15	2	28	-	-	17	2	1	18	10
11.	Tiruchirappalli	2.94	9	39	9	13	3	13	-	1	16	-	2	12	5
12.	Tirunaveli	2.51	7	31	9	12	7	8	1	1	2	3	2	2	9
	Total	28.17	80	375	133	145	37	96	18	10	81	12	22	165	62

CONSOLIDATED LIST OF MEDICAL INSTITUTIONS IN RURAL AND URBAN AREAS IN THE PUNJAB

APPENDIX-9

S.No.	District	Population 1961	P.H.Centres	Dispensaries Unit			Employment in surance	Hospitals		No. of Beds	Area Sq. Mile	Density of population/sq. mile
				General	School Health	Tuberculosis		central	Tuberculosis			
-	1	2	3	4	5	6	7	8	9	10	11	12
1.	Ambala	1.37	10	39	1	1	1	1	-	1045	2134	644
2.	Amritsar	1.53	11	40	1	1	-	15	-	2517	1978	776
3.	Bhatinda	1.06	10	20	-	-	-	8	-	340	2706	390
4.	Ferozpur	1.62	17	38	-	2	-	9	-	600	3882	417
5.	Gurdaspur	0.99	8	25	-	1	-	7	-	494	1360	726
6.	Gurgaon	1.24	13	27	1	1	1	7	-	340	2367	524
7.	Hissar	1.54	14	36	1	1	1	14	1	1247	5380	286
8.	Hoshiarpur	1.23	13	34	-	1	-	5	1	517	2210	558
9.	Jullandar	1.23	11	29	-	-	-	9	1	865	1335	919
10.	Kangara	1.06	17	43	-	-	-	9	2	903	4904	217
11.	Kapurthala	0.34	6	8	-	1	-	4	-	156	630	546
12.	Karnal	1.49	14	27	-	1	1	5	-	432	3062	487
13.	Ludhiana	1.02	8	24	1	1	-	8	-	1028	1324	712
14.	Lahul Spiti	0.02	2	7	-	-	-	1	-	18	4714	4
15.	Mohindargarh	0.55	4	9	-	1	-	6	-	183	1343	408
16.	Patiala	1.05	10	18	-	1	-	8	1	1126	2262	464
17.	Rohtak	1.42	12	26	1	1	1	6	1	542	2330	610
18.	Sangrur	1.43	14	18	-	1	-	8	1	280	3031	470
19.	Simla	0.11	1	8	-	1	-	8	-	628	254	444
	Total	20.30	195	476	6	16	5	149	6	13261	47208	

Appendix-10

Tasks for male Field Health Worker in Family Planning (1per 30,000)

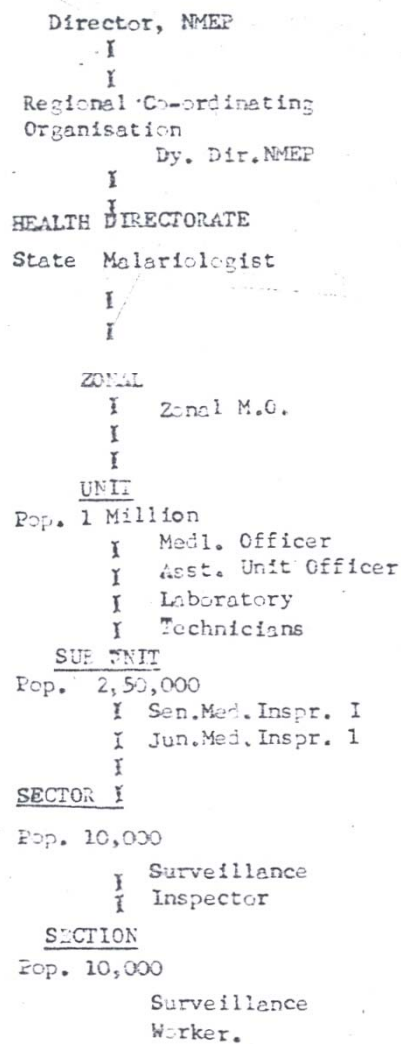
1. To locate leaders for F.P. in each village.
2. To help leaders from health committees in each village with close relationship to Panchayats.
3. To help health committee:
 - (a) determine how many stockists of contraceptives there shall be in each village and make plans for adequate storage and distribution of contraceptives so that all married couples have access to needed supplies.
 - (b) Determine what methods of education Panchayats wish to use in teaching the people of the village about contraceptives.
 - (c) To visit Health Committee chairman once a week to discover needs and problems in family planning programme.
 - (d) To supply educational materials to chairman as are needed.
 - (e) To discuss F.P. programme with small groups of men at the request of chairman of health committee.
 - (f) To work with auxiliary nurse-midwives in helping them to arrange meetings with groups of women in the village.
 - (g) To help Block Extension Educator and Senior sanitary Inspector develop training camps and meetings for health committee members and other leaders and workers in the village.
 - (h) To help in Block or District F.P programmes in special campaigns as for example , vasectomy or tubectomy camps.
4. To supplement health education activities in other health programmes.

CENTRAL

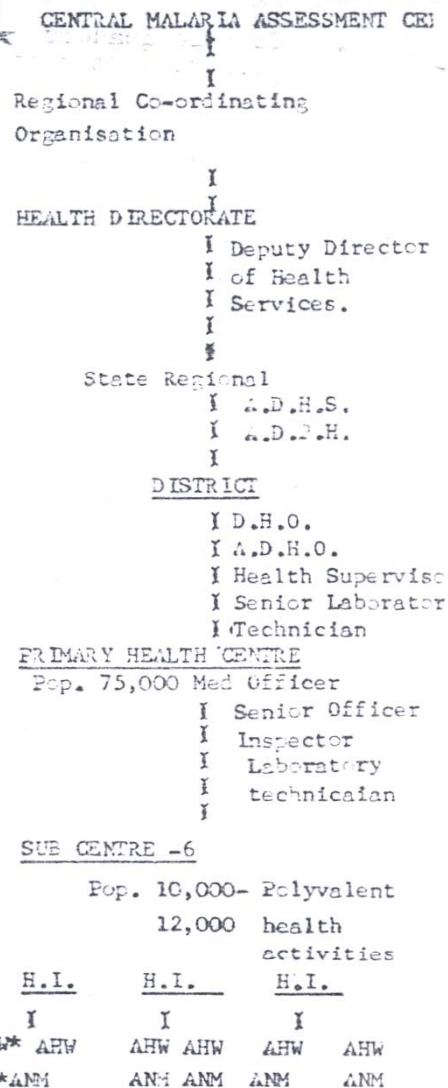
STATE

ORGANISATIONAL CHART SHOWING THE PRESENT N.M.E.P.
ORGANISATION AND THE STRENGTHENED HEALTH ORGANISATION
RECOMMENDED.

N.M.E.P. ORGANISATION



POLYVALENT HEALTH ORGANISATION



* A.H.W. = Health Assistant or Auxiliary Health Workers.

** A.N.M. = Auxiliary Nurse Midwife.

LINE OF COMMAND

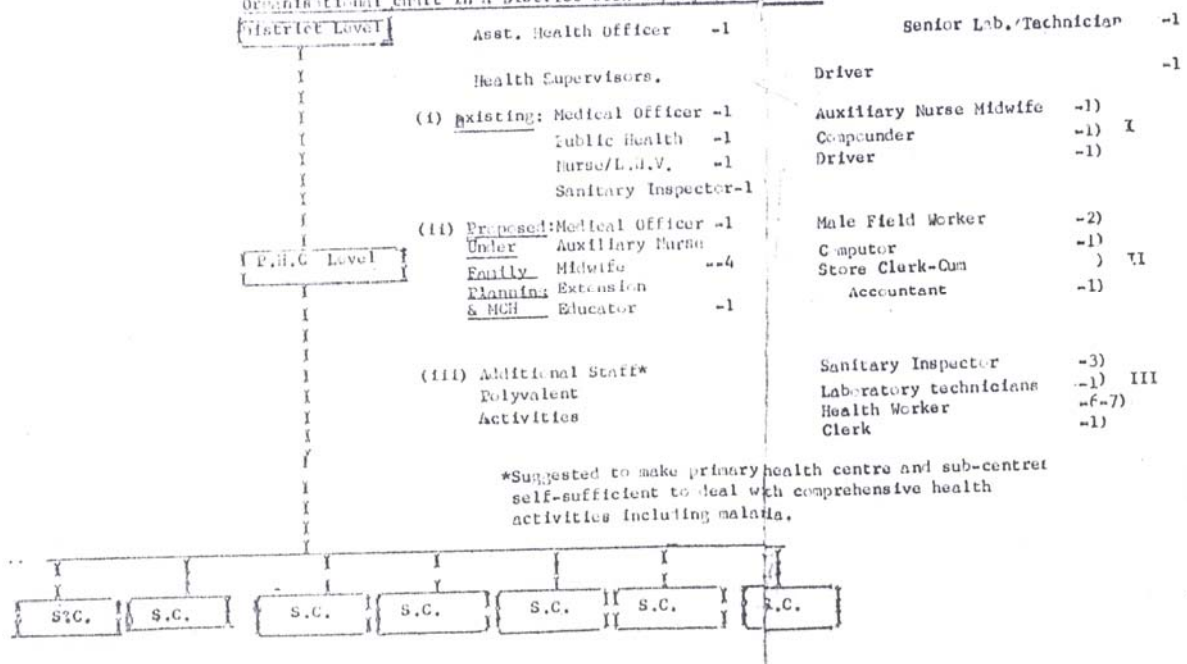
State Health Directorate	-	Deputy Director
I		I
State Regional Health Office	-	Regional Officer
I		I
District Health Officer	-	District Health Officer
I		Asstt. District Health Officer
Primary Health Centre	-	Medical Officer
I		I
I		Health Inspectors
I		I
Sub-Centres		(Aux.) Health Worker/Asstt.

Appendix-12

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APPENDIX -12

Organizational chart in a District with deployment of staff



Appendix-13

Content of the training course for the Peripheral workers

Period – Initial One Month (4 weeks)

Content:

1. Control of communicable diseases including vaccination, immunization
2. Environmental sanitation
3. Health Education
4. Vital Statistics

The CONCEPT OF MALARIA ERADICATION

The concept of disease eradication is not a new one and is at least 60 years old. The idea of eradication of malaria however, is of recent origin, having been conceived first in 1948 when it was presented at the Fourth International Congress of Tropical Medicine and Malaria in Washington. The few malariologists who in the early DDT era, named their national programmes “ malaria eradication” seemed to have had in mind the objective of achieving an enormous reduction of mortality and morbidity or that of suppressing entirely new infections by repeating year after year the spraying operations. I meanwhile malaria control programme undertaken in a few countries using DDT as a residual insecticide provided a few lessons, using revolutionised the whole concept of malaria eradication. The lessons were :-

- (1) If transmission has been fully interrupted for a few years, spraying could be withdrawn without the return of malaria.
- (2) If a large area is sprayed with DDT with maximum efficiency for at least 3 years it is possible to stop spraying from the fourth year provided that a system of case finding and treatment is operating.
- (3) The other lesson learnt, namely, the possibility of mosquitoes becoming resistant to insecticides added the sense of urgency to the eradication programme.

2. Malaria control vis-à-vis eradication formed the subject for deliberation at the Fourteenth Pan-American Sanitary Conference in Santiago, Chile in October 1954 and at the Malaria Conference for Western Pacific and South East Asia regions of the World Health Organisation in Baguio, Philippines in November 1954. Both conferences recommended that the ultimate goal of a nation wide malaria control programme be the eradication of the disease. This was accepted by the Eighth W.H.O. assembly in May, 1955 after consideration by the WHO Executive board in January 1955 after consideration by the WHO changed its objective in the malaria policy from control to eradication, aiming at the ending of the transmission of malaria and the elimination of the reservoir of infective cases in a campaign limited in time and carried to such a degree of perfection that when it comes to an end there is no resumption of transmission

3. The main operation runs in several phases- preparatory attack and consolidation. As a rule, the first phase lasts about a year when the basic information required is collected through a skeletal structure and personnel trained and organization worked out. During the attack phase the main activity during the first two years is the application of residual insecticides. The surveillance component designed for detection of cases and taking of remedial action is set up from the third year when the spraying operation is still to continue.

-
1. EMILO PAMPANA – “A Text Book of Malaria Eradication” Oxford University Press, 1963.
 2. W.H.O. Expert Committee on Malaria – Sixth Report Technical Series No. 123, 1957.
-

During the consolidation phase the activities are aimed at the intensification of surveillance operation after the intensification of surveillance operation after the interruption of spray programme. However much depends on the ability of the unit to meet the technical criteria

specified for the purpose. Normally malaria eradication should be achieved 2- 3 years after entry into the consolidation phase. This is followed by the maintenance phase.

4. The introduction synthetic residual insecticides thus halted the use of expensive drainage works and costly larviciding operations and led to the control and eradication of malaria in rural areas.

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45. Dr.W.C.Jolly
Deputy Assistant Director General of Health Services, (Health Education)
46. Dr.B.G.Misra
Assistant Director, National Malaria Eradication Programme , Delhi-6
47. Dr.L.Ramachandran
Officer-in-Charge, Rural Health Training Centre, Najafgarh (Delhi)